

What is claimed is as follows:

1. A stent delivery system comprising a catheter having a shaft and expandable inflatable means associated therewith at a distal part of the shaft and including mounting and retaining means for receiving a stent on the expandable means for radial expansion of the stent, the mounting and retaining means being associated with the inflatable means and being constructed and arranged for selectively providing an enlarged mounting body for receiving the stent.
2. The system of claim 1 wherein the mounting body is inside the inflatable means.
3. The system of claim 1 wherein the mounting body is outside the inflatable means.
4. A balloon catheter including a stent mounting means comprising a mounting body carried by the catheter and which is axially movable between a stent mounting position associated with the balloon and a position removed from the stent mounting position.
5. A stent delivery system comprising:  
a catheter having a shaft and expandable inflatable means associated therewith at a distal part of the shaft and including mounting and retaining means for receiving a stent on the expandable inflatable means and for radial expansion of the stent upon inflation of the inflatable means, the mounting and retaining means including at least one mounting body carried on and surrounding the shaft inside the inflatable means whereby the diameter of the shaft and inflatable portion may be increased at the distal part of the shaft for facilitating the mounting and retaining of the stent.
6. The delivery system of claim 5 wherein the mounting body is axially movable with respect to the inside shaft, and including means for moving the mounting body.
7. The stent delivery system of claim 6 wherein the mounting body is of a material which resiliently deforms under radial pressure.
8. The stent delivery system of claim 7 wherein the material is elastomeric.

9. The stent delivery system of claim 7 wherein the material comprises HDPE.

10. The stent delivery system of claim 7 wherein the material comprises silicone.

5 11. The stent delivery system of claim 6 wherein the mounting body configuration includes at least one separation whereby the flexibility of the body and catheter is increased.

12. The stent delivery system of claim 11 wherein the separation is in the form of a spiral.

10 13. The stent delivery system of claim 6 wherein the mounting body is positionable to receive a stent and a stent is crimped to the mounting and retaining means over the balloon for delivery.

14. The stent delivery system of claim 5 including a stop positioned at the distal end portion of the inflatable means and carried by the shaft inside the  
15 inflatable means.

15 15. The stent delivery system of claim 5 including at least one marker band.

16. The stent delivery system of claim 5 wherein the inflatable means comprises a balloon.

20 17. The stent delivery system of claim 5 including a stop positioned at the distal end of the catheter and carried by the shaft inside the inflatable means.

18. The stent delivery system of claim 5 wherein the mounting body is in a fixed position and is adapted and arranged to enlarge in diameter to receive a stent.

25 19. The stent delivery system of claim 18 wherein the mounting body is a second inflatable means inside the first inflatable means, the inner one being shaped to have wide end portions and a narrow center portion.

20. The stent delivery system of claim 18 wherein the mounting  
body is a coil-like structure adapted and arranged to be compressed and the proximal  
30 portion of the inside shaft is connected thereto for compressing the structure to  
enlarge its diameter.

21. The system of claim 18 wherein the mounting body is a sleeve including radial accordion like pleats extending over at least a portion of its length, the distal end being secured to the inside shaft and a means for compressing the body from its proximal end and attached thereto.

5                   22. The system of claim 21 wherein the pleats of certain portions of the body are spaced differently to provide regions of different enlargement.

23. The stent delivery system of claim 20 wherein the coil is coated with a polymer.

24. The stent delivery system of claim 20 wherein the coil is  
10 enclosed in a polymeric sheath.

25. The stent delivery system of claim 6 wherein the mounting body is a slidably carried coil.

26. A balloon catheter including an elastomeric sheath carried over the balloon, the sheath being constructed and arranged for axial movement and  
15 positioning between a stent mounting position over the balloon and a position removed from the stent mounting position.

27. A method of changing the profile of a balloon catheter for improving the mounting of a stent thereon and providing a catheter for multiple use, comprising the steps of:

20                   providing a balloon catheter of relatively low profile adapted and rearranged for use in an angioplasty procedure;  
sliding a stent mounting body to a position associated with the balloon to a position for receiving a stent and enlarging the catheter profile at that position,  
and

25                   mounting a stent on the balloon and mounting body at that position.

28. In a balloon catheter apparatus, the method of enlarging the catheter profile for facilitating the mounting of a stent thereon, comprising:

selectively providing an enlarged mounting body within the balloon in a position to receive a stent.

30                   29. The method of claim 28 wherein the enlarged body is provided by sliding it into the position.

30. The method of claim 28 wherein the enlarged body is provided by inflating an inner balloon within the catheter balloon.

31. The method of claim 28 wherein the enlarged body is provided by compressing a body already in the position to enlarge its diameter for receiving a  
5 stent.